

What is claimed is:

1. A method for controlling use of proprietary resources associated with a vehicle, comprising:

providing resources including proprietary resources associated with a vehicle including a plurality of the following: a first bus, a first interface, a first display, a first vehicle device, a first subsystem, a first application, and a second application;

establishing a plurality of relationships involving at least three entities, wherein first and second entities of said at least three entities has proprietary rights in at least first and second proprietary resources, respectively, and each of said three entities accepts a plurality of conditions related to use of said at least first proprietary resource; and

performing at least a first function after said establishing while making use of at least said first and second proprietary resources.

2. A method of Claim 1 wherein said first vehicle device communicates with said first bus and said first application executes in association with said first vehicle device and in which said first entity has proprietary rights in said first vehicle device, but not in said first application and said second entity has proprietary rights in said first application, but not in said first vehicle device.

3. A method of Claim 1 wherein said first application relates to at least one of the following: regulating said first vehicle device using commands; changing a certificate related to granting use of at least one of said proprietary resources; accessing an assertion repository associated with a security controller; providing weather and road conditions information; monitoring vehicle location; toll and transportation payments; servicing a navigation subscription for the vehicle; executing vehicle diagnostics; exercising control over said first subsystem related to use thereof.

4. A method of Claim 1 wherein said first vehicle device includes at least one of: an engine monitor, an oil pressure sensor, a temperature sensor and an inflator device.

5. A method of Claim 1 wherein said first subsystem includes at least one of the following: a body control, a chassis control, an engine control, a transmission control, telematics control, a global positioning system (GPS), storage memory located in the vehicle, a personal digital assistant (PDA), a laptop computer, a CD-ROM, a vehicle monitoring system (VMS), a printer, and an accident and emergency notification alarm (AENA).

6. A method of Claim 1, wherein:

said providing includes providing a security controller in communication with at least some of said plurality of resources and being used in controlling at least one of the following: monitoring stored information related to vehicle warranty and quality assurance; arbitrating
5 priority; granting access to diagnostic information and vehicle configuration information; granting access to vehicle information, driver information and vehicle control to authorized service providers; granting access to vehicle information, driver information and vehicle control to an authorized user of the vehicle; granting access to enable or change control of vehicle devices; granting access to one or more features of said first subsystem when made
10 available for communication in the vehicle; granting access to services authorized for a user; granting access to authorized credit and debit entities to using an assertion repository; granting access to vehicle positioning data; granting access to vehicle data related to border crossing and weight inspection; granting access to vehicle data related to a smog test; and granting access to an assertion repository related to public or private transportation, toll and
15 parking payments.

7. A method of Claim 1, wherein at least one condition of said plurality of conditions is different for at least one of said three entities.

8. A method of Claim 1 wherein said establishing includes describing said plurality of conditions that said three entities accept including at least some of: compensation for using at least said first proprietary resource, time within which said at least first proprietary resource can be used, an identity of said at least first proprietary resource, use to

5 which said first proprietary resource can be made and at least one remedy that is available when one or more of said conditions is not met.

9. A method of Claim 1 wherein said establishing includes certifying at least one of said first application and said first subsystem for use in the vehicle using a first certificate.

10. A method of Claim 9 wherein said certifying includes producing a plurality of keys related to allowing use of at least said first proprietary resource by a third entity of said three entities.

11. A method of Claim 9 wherein said certifying includes providing a number of properties as part of a first certificate granted to a third entity of said three entities, said properties including at least one of the following: an identifier that identifies uniquely said third entity; a priority level; a geographic area where said first certificate is valid; an expiration date of said first certificate; one or more proprietary resources with which
5 communications are to be made using said first application; one or more application programming interfaces (APIs) available for use; and one or more authentication procedures required to enable use of one or more of said plurality of resources.

12. A method of Claim 9 wherein said certifying includes generating a first certificate request by a third entity of said three entities and providing said first certificate request to a certificate authority.

13. A method of Claim 9 wherein said certifying includes associating a signature key from a certificate authority with said first certificate.

14. A method of Claim 13 wherein said certifying includes associating a signature key of a requester of said first certificate with said first application.

15. A method of Claim 9, wherein said certifying includes approving said first application by at least a first authority.

16. A method of Claim 9 wherein said certifying includes enabling generation of a certificate request by a certificate authority.

17. A method of Claim 9 wherein said certifying includes issuing said first certificate by a certificate authority and checking accuracy of said first certificate by a requester of said first certificate.

18. A method of Claim 9 wherein said certifying includes granting a certificate request related to said first certificate to a certificate requester by a certificate authority.

19. A method of Claim 9 further including utilizing information related to said first certificate to ascertain compensation to be made by a first certificate requester.

20. A method of Claim 9 further including revoking said first certificate by a certificate authority based on at least a first predetermined condition.

21. A method of Claim 9 further including authenticating said first certificate by a security controller in the vehicle.

22. A method of Claim 1 in which said establishing includes establishing a federation in which at least some of said entities have predetermined credentials to enable access and use of at least one of the said resources and in which said resources further include an assertion repository.

23. A system for controlling use of proprietary resources in a vehicle, comprising:

resources including proprietary resources for use in the vehicle including a plurality of the following: a first bus, a first vehicle device, a first subsystem, a first display, a first application, a second application and a first interface; and

5 a security controller communicating with at least a first of said proprietary resources wherein said security controller controls use of at least said first proprietary resource utilizing certificate information that includes stored certificate information accessible by said security controller that relates to approval of use of said at least first proprietary resource by a first certificate holder of a first certificate, wherein said approval involves at least a first entity
10 having proprietary rights associated with said at least first proprietary resource.

24. A system of Claim 23 wherein said stored certificate information includes a certificate authority public key used to authenticate a first certificate of said first certificate holder.

25. A system of Claim 23 wherein said security controller is involved with performing at least one of the following: authenticating said first application using said stored certificate information; authenticating a user associated with said first application using stored identification information; verifying use of said at least first proprietary resource
5 utilizing at least one of location and time; relying on at least a first key in determining whether to allow execution of said first application; enabling a number of applications including said first application and said second application to execute simultaneously using a plurality of said proprietary resources; enabling access to at least non-proprietary resources of said resources; arbitrating use of said first bus; and monitoring activity on said first bus.

26. A system of Claim 23 further including at least one of: a communication services module in communication with at least said first proprietary resource that is involved with communications, said communication services module for use in protecting and arbitrating access to said first proprietary resource and performing at least some of the
5 following functions: managing at least said first certificate and at least a first key; enforcing

one or more usage rules for said first proprietary resource; monitoring and logging usage associated with said first proprietary resource; providing fault notification; supporting communications outside the vehicle, including over the Internet; and supporting communication on said first bus.

27. A system of Claim 23 further including a human/machine interface services module in communication with said security controller that protects and arbitrates access to said first display and performs at least some of the following functions: managing, responding to, handling or otherwise being involved with: (a) tactile inputs such as steering wheel controls, buttons, switches, (b) audio and voice recognition, text-to-speech and/or voice prompts; (c) multiple displays including said first display; managing said first certificate and at least a first key related to use of said first display; enforcing one or more usage rules associated with said first display; monitoring and logging usage information related to said first display; providing fault notification related to said first display and supporting communication on said first bus.

28. A system of Claim 23 further including a vehicle gateway and a vehicle services module, wherein said first bus includes one or more vehicle buses including a first vehicle bus communicating with said vehicle gateway that allows access to information obtained from vehicle devices in communication with said vehicle bus, said vehicle services module involved with at least one of the following functions: managing said first certificate and at least a first key related to use of one or more vehicle devices including said first vehicle device communicating with said first vehicle bus; enforcing one or more usage rules associated with said first vehicle bus and said vehicle devices; monitoring and logging usage related to said first vehicle bus and said vehicle devices; providing fault notification related to said first vehicle bus and said vehicle devices; upgrading said first vehicle bus access for outgoing requests; and supporting security on said first vehicle bus.

29. A system of Claim 23 wherein said proprietary resources include at least some of the following: sensors of vehicle devices, diagnostic messages and alarms, a global positioning system (GPS) receiver, a storage memory located in the vehicle, a compact disc read only memory (CD-ROM), a cellular telephone, a vehicle monitoring system (VMS), an inflator system, a printer, a personal digital assistant (PDA), a laptop computer, and an accident and emergency notification alarm (AENA).

30. A system of Claim 23 wherein said first application relates to at least one of the following: determining access to vehicle devices and controlling vehicle functions; contributing to alarm notification sent to at least one predetermined authority; a subscription service for navigation; performing vehicle diagnostics; upgrading firmware; conducting a configuration upgrade for the vehicle; accessing and using an assertion repository; providing vehicle, road and weather conditions; and determining that said first proprietary resource can be used.

31. A method for securely controlling access and use related to a target provider involving a vehicle having a security controller, comprising:
providing a security system that includes a security controller in a vehicle;
requesting a target provider;
obtaining first information using said security controller related to authorizing use of said target provider by a requesting application; and
determining use related to said target provider based on said first information.

32. A method of Claim 31 wherein said requesting is conducted using said requesting application and said determining is made using said target provider.

33. A method of Claim 31 wherein said requesting is initiated by said requesting application.

34. A method of Claim 31 wherein said first information relates to a plurality of information available from said security system and said security system includes a database for storing said plurality of information and a decision engine in communication therewith.

35. A method of Claim 34 wherein said decision engine determines to provide said first information based on at least one factor that includes: an identity related to said requesting application, information being requested and consent from an entity involved with authorizing use of said target provider.

36. A method of Claim 31 wherein said first information maintains privacy of an identity associated with at least one of said requesting application, said security controller and an entity whose consent is required to implement said requesting application.

37. A method of Claim 31 wherein said security controller issues credentials related to at least a first resource located in the vehicle.